

PTO/SB/33 (07-05)

Approved for use through xx/xx/200x. OMB 0651-00xx
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays an OMB control number.

PRE-APPEAL BRIEF REQUEST FOR REVIEWDocket Number (Optional)
GP-302782

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to "Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

Application Number
10/650,208Filed
August 28, 2003First Named Inventor
Andrew W. PhillipsOn September 8, 2006

Signature

Art Unit
3683Examiner
Nguyen, Xuan Lan TTyped or printed name ~~Michael D. Wiggins~~

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

Notice of Appeal

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

Pre-Appeal Brief Request For Review (5 pgs)

I am the

☐ applicant/inventor

☐ assignee of record of the entire interest.

See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☐ attorney or agent of record.

Registration number _____

☒ attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 34,754

Signature

Michael D. Wiggins

Typed or printed name

248-641-1600

Telephone number

September 8, 2006

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/650,208
Filing Date: August 28, 2003
Applicant: Andrew W. Phillips
Group Art Unit: 3683
Examiner: Lan Nguyen
Title: THERMAL SIMULATION FRICTION DEVICE COOLING
CONTROL
Attorney Docket: GP-302782

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

In response to the Advisory Action mailed August 14, 2006, Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request. This request is being filed with a Notice of Appeal. The review is being requested for the reasons stated on the attached sheets.

REMARKS (REJECTION UNDER 35 U.S.C. § 102)

Claims 1, 3 – 10 and 12 – 26 stand finally rejected under 35 U.S.C. § 102(b) as being anticipated by Lentz (U.S. Pat. No. 5,216,606). This rejection is respectfully traversed.

As discussed in detail in the previous responses, claims 1, 10 and 20 include an apparatus and method of controlling cooling of a friction device. A temperature state is estimated based on an estimated heat rate of the friction device and a cooling flow command is calculated based on the temperature state. Lentz fails to teach or suggest regulating cooling of a friction device based on an estimate temperature state, which is based on an estimated heat rate of the friction device.

Throughout the prosecution of the present application, the disclosure of Lentz has been mischaracterized in an attempt to adapt Lentz to the subject-matter of the independent claims. A proper reading of Lentz reveals a compensated control method for actuating an on-coming clutch in an automatic transmission. Lentz determines a clutch fill or engagement time (T_{FILL}) (Col. 4, Lines 44 – 45) and a pump efficiency based on the temperature of the hydraulic fluid (Col. 3, Lines 32 – 41). The pump speed and thus the engagement of the clutch is adjusted based on the pump efficiency (Col. 6, Lines 1 – 18). Accordingly, Lentz accounts for temperature changes in the hydraulic fluid used to actuate the friction device to enable the torque transfer through the friction device to be accurately regulated, and does not describe improved heat protection for the friction device. Further, Lentz is limited to actually measuring a fluid temperature to adjust a pump speed and fails to teach or suggest estimating a friction device temperature or estimating a heat rate of the friction device.

In an effort to apply the clutch actuation disclosure of Lentz to the clutch cooling of the present application, the Examiner has stated that “[i]t is believed that it is well
Serial No. 10/650,208

known for hydraulic fluid to act as a cooling fluid while actuating the clutch". This belief, however, is inaccurate because it is not well known for hydraulic fluid to act as a cooling fluid while actuating the clutch. More specifically, the actuating fluid flow required to actuate the clutch is wholly independent of the coolant fluid flow required to cool the clutch. The actuating fluid flow is commanded to control the engagement of the clutch to a specific degree, and is not regulated to concurrently cool the clutch components.

For example, when the clutch is fully engaged, the actuating fluid flow command is at its maximum value. Because there is no relative slip between the clutch components, no heat is generated and the cooling flow command is at its minimum. When the clutch is partially engaged, the actuating fluid flow command is less than its maximum. Because there is slip across the clutch components, heat is generated and the cooling flow command is at its maximum. In both of these instances, the engagement flow and cooling flow are opposite. Accordingly, the above-described belief is inaccurate and misleading.

The Examiner has also asserted that "[i]t is well known that hydraulic [fluid] is used as an actuating/cooling fluid". Although this statement attempts to cure the deficient disclosure of Lentz, it suggests that cooling of a friction device is indeed not disclosed in Lentz. Accordingly, the Examiner has implicitly acknowledged that Lentz fails to teach each and every element of claims. This statement further evidences a hindsight approach in applying Lentz to the present claims. More specifically, in view of the lack of disclosure in Lentz with regard to cooling control, the Examiner simply states that it is known to use hydraulic fluid for actuating and cooling. As discussed in detail above, actuating and cooling are regulated in completely opposite manners in many instances. Accordingly, one could only use hindsight to adapt the disclosure of Lentz to the present claims.

In view of the foregoing, each of claims 1, 10 and 20 define over the prior art and reconsideration and withdrawal of the rejections are respectfully requested. Similarly, claims 3 – 9, 12 – 19 and 21 – 26, each of which ultimately depend from one of claims 1, 10 and 20, also define over the prior art.

Claims 1, 3 – 10 and 12 – 26 stand finally rejected under 35 U.S.C. § 102(e) as being anticipated by Buchanan (U.S. Pat. No. 6,715,597). This rejection is respectfully traversed.

As discussed in detail in the previously filed responses, which are incorporated herein by reference, Buchanan discloses a method of controlling clutches in a dual clutch transmission using a reactionary system that determines bulk clutch temperature change based on a measured fluid temperature. Buchanan does not account for the delay between heat generation and temperature measurement, which can result in clutch and/or fluid damage before adequate fluid flow is provided. Furthermore, Buchanan requires two temperature sensors (i.e., sump temperature and friction device exit temperature). Accordingly, Buchanan provides an excellent example of an overly complicated and more expensive system, which is directly opposite to that defined by the present claims.

In view of the foregoing, Buchanan fails to teach or suggest estimating a clutch temperature based on an estimated heat rate and further fail to teach or suggest a cooling flow command that is calculated based on the temperature state and that is not based on a signal from a temperature sensor associated with the friction device.

Accordingly, claims 1, 10 and 20 define over Buchanan and reconsideration and withdrawal of the rejections are respectfully requested. Similarly, claims 3 – 9, 12 – 19 and 21 – 26, each of which ultimately depend from one of claims 1, 10 and 20, also define over the prior art.

NEW MATTER

In the Advisory Action of August 14, 2006, the Examiner has asserted that the feature of "a cooling flow command" lacks support in the original disclosure.

At the outset, it is respectfully noted that 37 CFR §1.75(d)(1) provides that "the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description."

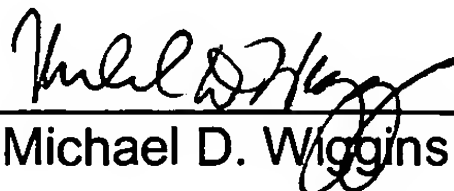
Every section of the application, as originally filed, references cooling of a friction device by controlling a fluid flow through the friction device (see, for example, the Title, Abstract and original claim 1, lines 1 – 2). Accordingly, the description, as originally filed, provides clear support and antecedent basis so that the meaning of the term "a cooling flow command" is ascertainable by reference to the description in accordance with the requirements of 37 CFR §1.75(d)(1).

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully notes that the present application is in condition for allowance. Thus, prompt and favorable consideration of the pending claims is respectfully requested. If it is believed that personal communication will expedite prosecution of this application, the undersigned is available at (248) 641-1600.

Respectfully submitted,

Dated: 9/8/06

By: 
Michael D. Wiggins, Reg. No. 34,754

GENERAL MOTORS CORPORATION
Legal Staff
Mail Code 482-C23-B21
P.O. Box 300
Detroit, MI 48265-3000

Serial No. 10/650,208